

WHAT IS CLAIMED IS:

1. A sealing mechanism for a waste storage container, said waste storage container having a body, a lid and a storage film cartridge adapted to be positioned in said body, said cartridge having a continuous length of storage film therein, said sealing mechanism comprising:

an actuator operably connected to said lid and said cartridge, wherein actuation of said actuator opens said lid and seals said storage film.

2. The sealing mechanism of claim 1, wherein a first actuation of said actuator opens said lid and a second actuation of said actuator seals said storage film.

3. The sealing mechanism of claim 2, wherein said second actuation of said actuator closes said lid.

4. The sealing mechanism of claim 1, wherein said actuator is operably connected to said cartridge by a series of linkages.

5. The sealing mechanism of claim 1, wherein said body has a bottom, and wherein said actuator is positioned substantially near the bottom of said body.

6. The sealing mechanism of claim 5, wherein said actuator protrudes from said body.

7. The sealing mechanism of claim 1, wherein said actuator seals said storage film by rotating said cartridge.

8. The sealing mechanism of claim 7, further comprising a clutch operably connected to said actuator and said cartridge, said clutch allowing said cartridge to rotate in only one direction.

9. The sealing mechanism of claim 8, further comprising a rack gear operably connected to said actuator and said clutch, and a spring connected to said rack gear, wherein actuation of said actuator causes said rack gear to move in a first direction against the bias of said spring and release of said actuator causes said rack gear to move in a second direction under the bias of said spring to cause said clutch to rotate said cartridge.

10. The sealing mechanism of claim 9, further comprising a locking mechanism operably connected to said spring, wherein said actuator locks said spring in a compressed position upon a first actuation and said actuator unlocks said spring upon a second actuator.

11. The sealing mechanism of claim 5, wherein said actuator is pivotally connected to a first linkage and said first linkage is pivotally connected to a second linkage, said first linkage being operably connected to said lid to allow a user to open and close said lid and said second linkage being operably connected to said cartridge to allow a user to seal said storage film.

12. A waste container, comprising:

- a container body defining a waste bin, a lid and an opening that provides access to the waste bin;

- a support mounted to the container body adjacent the opening, the support having a flange extending therefrom that is cylindrically configured for mounting a tubing cassette above the waste bin, wherein the support encloses less than all of the opening to the waste bin so that a waste packet can be passed through the opening and into the waste bin;

- a tubing cassette mounted to the flange of the support; and

- a tube sealing means for forming waste packets by twisting a flexible tubing that is dispensed from the tubing cassette; and

the lid portion enclosing an apparatus for controlling twisting the flexible tubing to form a tubing bag enclosing a waste packet.

13. A waste container as recited in claim 12, further comprising a waste bag mounted in the waste bin in which waste packets are sequentially collected.

14. A waste container as recited in claim 12, wherein the flange is configured so that the tubing cassette is rotated by a motor to create a twist closure in the tubing when enclosing a waste packet.

15. A waste container as recited in claim 14, wherein the tubing cassette is rotationally mounted to the flange, and further including a drive plate mounted to the tubing cassette, a drive gear drivingly engaged with the drive plate, and a motor mounted to the waste container lid and having an output shaft that rotates the drive gear when the motor is activated.

16. A waste container as recited in claim 15, wherein a timing circuit activates the motor to rotate the tubing cassette for a predetermined amount of time or a predetermined number of times.

17. A waste container as recited in claim 15, further comprising a manually operated switch for activating the motor.

18. A waste container as recited in claim 12, wherein the lid is hingedly attached to the container body.

19. The waste container of claim 12, further comprising a plunging device for moving of the twist-closed waste packet downwardly into the bin to create a tubing-lined space for a deposit of another waste pack.

20. The waste container of claim 12, further comprising:

a retention means for preventing rotation of a waste packet when the tubing cassette is rotated to create a twist in the flexible tubing; and

wherein the retention means also prevents the release of stored flexible tubing from the tubing cassette during the twisting rotation.

21. A waste container as recited in claim 14, further including a drive plate mounted to the tubing cassette, a drive gear drivingly engaged with the drive plate, and a motor mounted to the composite waste container and having an output shaft that rotates the drive gear when the motor is activated.

22. A waste container as recited in claim 21, wherein a timing circuit activates the motor to rotate the tubing cassette one of a predetermined amount of time or a predetermined number of times.

23. A waste container, comprising:

a container body defining a waste bin and an opening that provides access to the waste bin;

a support mounted to the container body adjacent the opening, and configured to enclose less than all of the opening to the waste chamber so that waste can be passed through the opening and into the waste chamber;

a tubing cassette rotationally mounted to the support above the waste chamber;
and

a retention means for preventing rotation of a waste packet when the tubing cassette is rotated to create a twist in the tubing; and

a plunging means for moving the twisted tubing downwardly to create new space for enclosing another waste packet.

24. The waste container of claim 23, comprising further, a tubing gripping means to prevent release of tubing from the cassette during rotation for twist-closure of the waste content.

25. The waste container of claim 23, further comprising an apparatus for automated sequestering of individual waste packets deposited and enclosed in the flexible tubing by means of motor-powered twisting of the flexible tubing and moving the waste packet enclosure into the waste container bin.

26. The waste container of claim 12, wherein the flexible tubing is equipped with adhesive means for enhanced stabilization of the twisted tubing.

27. A waste disposal apparatus as recited in claim 12, wherein the waste packet deposit is a soiled diaper.

28. A method for disposing of waste material, comprising:

providing a length of tubing having a first sealed portion of the tubing at a location along its length and an open end of the tubing;

inserting waste material through the open end of the tubing until it contacts the first sealed portion of the tubing to form a waste package;

retaining the waste package such that the waste package does not rotate in relation to the open end of the tubing;

rotating the open end of the tubing such that a twist is formed in the tubing between the open end of the tubing and the waste package; and

sealing at least a portion of the twisted tubing to form a second sealed portion located above the waste packet enclosure.

29. A method for disposing of waste material as recited in claim 28, further including the step of moving the length of tubing in a direction away from the open end of the tubing in preparation for the waste packet deposit step.

30. A method for disposing of waste material as recited in claim 28, wherein the sealing step includes sealing at least a portion of the twisted tubing to form a second sealed portion by optionally electro-thermally heating or chemical adhesive application to at least a portion of the twisted tubing.

31. A method for disposing of waste material as recited in claim 28, wherein the retaining step includes retaining the waste package by gripping the waste package enclosure, such that the waste packet does not rotate in relation to the open end of the tubing.

32. A method for disposing of waste material as recited in claim 28, wherein the inserting step includes inserting or depositing a soiled diaper through the open end of the tubing until it contacts the first sealed portion of the tubing to form a waste package.

33. A container for automated diaper disposal, comprising:

- a container bin compartment for diaper deposits;

- a container top compartment enclosing an apparatus for automated sequestering of diapers in the container bin;

- a combination of an automatically controlled motor-driven twisting operation which sequesters each deposited diaper individually in flexible tubing into a container bin compartment; and

- an automatically controlled motor-driven plunging operation which moves the twist-locked diaper into the container and creates a predetermined length of the

flexible tubing so as to provide space for the next following diaper deposit within the flexible tubing.

34. A waste disposal device, comprising:

a container defining a waste chamber for receiving encapsulated waste packages;

a lid coupled to said container and movable between an open position in which said chamber is accessible and a closed position in which said chamber is covered;

a cartridge arranged in said container and containing a length of flexible tubing arranged to receive waste packages, said cartridge being maintainable in a stationary position;

a retention mechanism for holding a waste package received in said tubing; and

a rotation mechanism arranged to rotate said retention mechanism, and thus a waste package when held by said retention mechanism, while said cartridge is stationary in order to twist said tubing and encapsulate the waste package.

35. The waste disposal device of claim 34, further comprising an anti-rotation mechanism for holding said cartridge stationary during rotation of said retention mechanism.

36. The waste disposal device of claim 34, wherein said retention mechanism comprises a gear rim, said rotation mechanism engaging with said gear rim to cause rotation of said gear rim and thus said retention mechanism.

37. The waste disposal device of claim 36, wherein said rotation mechanism comprises:

a motor having a shaft and providing rotational movement to said shaft;

a gear arranged on said shaft and in engagement with said gear rim; and

a motor actuation mechanism for actuating said motor to rotate said shaft.

38. The waste disposal device of claim 37, wherein said motor actuation mechanism comprises a foot pedal coupled to said motor and arranged such that upon depression of said foot pedal, said motor is actuated.

39. The waste disposal device of claim 37, wherein said motor actuation mechanism comprises a pushbutton coupled to said motor such that upon depression of said pushbutton, said motor is actuated.

40. The waste disposal device of claim 37, wherein said motor actuation mechanism comprises a switch arranged on said container and coupled to said motor and a plunger arranged on said lid to engage said switch when said lid is closed, said switch being arranged to actuate said motor upon pressured being applied by said plunger.

41. The waste disposal device of claim 36, wherein said rotation mechanism comprises a pedal arranged in a slot partially outside of said container, a pulley connected to said pedal and a movement converting mechanism for converting unidirectional movement of said pedal in said slot and thus movement of said pulley into rotation of said gear rim.

42. The waste disposal device of claim 34, further rising a compacting mechanism for compacting the waste packages.

43. The waste disposal device of claim 34, wherein aid rotation mechanism comprises:
a frame defining a waste passage through which the waste packages pass;

resilient members connected to said frame and extending inward into said waste passage to engage with the waste packages;

a handle situated at least partially outside of said container, said handle being movable in a slot in an outer wall of said container; and

movement converting means for converting movement of said handle into uni-directional rotational movement of said frame to thereby rotate said frame, said resilient members and a waste package engaged by said resilient members relative to said tubing in said cartridge.

44. The waste disposal device of claim 34, wherein retention mechanism comprises a pail having a retention member extending upward from a base of the pail and adapted to hold the waste package between said retention member and walls of said pail, said rotation mechanism comprising a turntable arranged below said pail to selectively engage said pail and a string wound partially about said turntable to cause rotation of said turntable and thus said pail when said string is pulled.

45. The waste disposal device of claim 34, wherein said container comprises a cylindrical outer wall, further comprising an access door formed in and pivotally connected to said outer wall.

46. The waste disposal device of claim 34, wherein said container comprises cylindrical outer wall and a hamper defining the waste chamber and having an outer wall constituting part of the outer wall of said container, said hamper being removable from said container.

47. The waste disposal device of claim 34, wherein said retention mechanism comprises:

a frame defining a waste passage through which the waste package passes;

resilient springs connected to said frame and extending inward into said waste passage to engage with and hold the waste package;

a support flange connected to said frame for supporting said cartridge.

48. The waste disposal device of claim 34, further comprising means for holding said cartridge stationary during rotation of said retention mechanism.

49. A waste disposal device, comprising:

- a container defining a waste chamber for receiving encapsulated waste packages;

- a lid coupled to said container and movable between an open position in which said chamber is accessible and a closed position in which said chamber is covered;

- a cartridge arranged in said container and containing a length of flexible tubing arranged to receive waste packages;

- a retention mechanism for holding a waste package received in said tubing, said retention mechanism being fixed to said container;

- a rotation mechanism arranged to rotate said cartridge relative to said retention mechanism in order to twist said tubing and encapsulate a waste package when held by said retention mechanism; and

- a toothed member attached to said lid,

- said cartridge comprising a gear rim,

- said rotation mechanism engaging with said toothed member and said gear rim during movement of said lid and comprising at least one gear arranged in said container for enabling the conversion of movement of said lid to rotational movement of said gear rim.

50. The waste disposal device of claim 49, wherein said rotation mechanism is constructed to convert movement of said lid in a downward direction to rotational movement of said gear rim and prevent movement of said lid in an upward direction from being converted to rotational movement of said gear rim.

51. A waste disposal device, comprising:

a container defining a waste chamber for receiving encapsulated waste packages;

a lid coupled to said container and movable between an open position in which said chamber is accessible and a closed position in which said chamber is covered;

a cartridge arranged in said container and containing a length of flexible tubing arranged to receive waste packages;

a retention unit for holding a waste package received in said tubing; and

rotation means for rotating said retention unit, and thus a waste package held by said retention unit, relative to said cartridge in order to twist said tubing and encapsulate the waste package.

52. The waste disposal device of claim 51, further comprising means for holding said cartridge stationary during rotation of said retention unit.

53. The waste disposal device of claim 51, wherein said retention unit comprises a gear ring and a plurality of resilient springs adapted to engage with the waste package, said rotation means engaging with said gear ring to cause rotation of said gear ring and thus said retention unit.

54. The waste disposal device of claim 53, wherein said gear ring comprises a gear rim engaging with said rotation means and an adapter rim interposed between and coupled to said gear rim and said cartridge for coupling said cartridge to said gear rim.

55. The waste disposal device of claim 53, wherein said rotation means comprise a motor having a shaft and providing rotational movement to said shaft, a gear arranged on said shaft and in engagement with said gear ring and a motor actuation mechanism for actuating said motor to rotate said shaft.

56. The waste disposal device of claim 55, wherein said motor actuation mechanism comprises a foot pedal coupled to said motor and arranged such that upon depression of said foot pedal, said motor is actuated.

57. The waste disposal device of claim 55, wherein said motor actuation mechanism comprises a pushbutton coupled to said motor such that upon depression of said pushbutton, said motor is actuated.

58. The waste disposal device of claim 55, wherein said motor actuation mechanism comprises a switch arranged on said container and coupled to said motor and a plunger arranged on said lid to engage said switch when said lid is closed.

59. The waste disposal device of claim 51, wherein said retention unit comprises a pail having a retention member extending upward from a base of the pail and adapted to hold the waste package between said retention member and walls of said pail, said rotation means comprising a turntable arranged below said pail to selectively engage said pail and a string wound partially about said turntable to cause rotation of said turntable and thus said pail when said string is pulled.

60. The waste disposal device of claim 51, wherein said retention unit comprises:

a frame defining a waste passage through which the waste package passes;

resilient springs connected to said frame and extending inward into said waste passage to engage with and hold the waste package;

a support flange connected to said frame for supporting said cartridge.

61. A waste disposal device, comprising:

a container defining a waste chamber for receiving encapsulated waste packages;

a lid coupled to said container and movable between an open position in which said chamber is accessible and a closed position in which said chamber is covered;

a toothed member attached to said lid;

a cartridge arranged in said container and containing a length of flexible tubing arranged to receive waste packages;

a retention mechanism for holding a waste package received in said tubing, said retention mechanism comprising a gear rim; and

a rotation mechanism for rotating said retention mechanism relative to said cartridge in order to twist said tubing and encapsulate a waste package received in said tubing, said rotation mechanism engaging with said toothed member and said gear rim during movement of said lid and comprising at least one gear for enabling the conversion of movement of said lid to rotational movement of said gear rim and thus said retention mechanism.

62. The waste disposal device of claim 61, wherein said retention mechanism further comprises a frame attached to said gear rim and including a plurality of resilient springs adapted to engage with the waste package.

63. The waste disposal device of claim 61, wherein said rotation mechanism is constructed to convert movement of said lid in a downward direction to rotational movement of said gear rim and prevent movement of said lid in an upward direction from being converted to rotational movement of said gear rim.

64. The waste disposal device of claim 61, wherein said toothed member comprises a rack gear having a series of teeth on an outer or inner arcuate surface.

65. The waste disposal device of claim 61, further comprising an anti-rotation mechanism for holding said cartridge stationary during rotation of said retention mechanism.

66. A waste disposal device, comprising:

- a container defining a waste chamber for receiving encapsulated waste packages;

- a lid coupled to said container and movable between an open position in which said chamber is accessible and a closed position in which said chamber is covered;

- a cartridge arranged in said container and containing a length of flexible tubing arranged to receive waste packages;

- a retention mechanism for holding a waste package received in said tubing;

- a rotation mechanism for rotating said retention mechanism relative to said cartridge in order to twist said tubing and encapsulate a waste package when held by said retention mechanism; and

- compacting means for compacting the waste packages.

67. A waste storage device comprising a container comprising a receptacle and a lid attached to said receptacle, a retention mechanism holding a cassette or cartridge, and a rotation mechanism for rotating the cassette or cartridge, said cassette or cartridge comprising a flexible tubing for packaging waste material, said cassette further comprising a sensing mechanism for activating an electronic detection mechanism for counting revolutions of the cassette during operation of the device.